

What is claimed is:

1. A pattern writing apparatus for writing a pattern by irradiating an object with a plurality of modulated light beams, comprising:

5           a light source part for generating a plurality of light beams which are modulated;  
          an optical waveguide array having a plurality of input ends which are aligned and receive a plurality of light beams from said light source part, respectively, and a plurality of output ends which are aligned at a pitch smaller than the smallest one of intervals at which said plurality of input ends are aligned and output a plurality of light beams, respectively;  
10           a supporting part for supporting an object to be irradiated with a plurality of light beams from said optical waveguide array; and  
          a scanning mechanism for scanning an object with a plurality of light beams from said optical waveguide array.

15           2. The pattern writing apparatus according to claim 1, wherein  
          said light source part comprises a plurality of semiconductor lasers.

3. The pattern writing apparatus according to claim 2, wherein  
          said plurality of semiconductor lasers are blue semiconductor lasers.

20           4. The pattern writing apparatus according to claim 3, wherein  
          said optical waveguide array is mainly made of quartz.

25           5. The pattern writing apparatus according to claim 1, wherein  
          said optical waveguide array is formed by photolithography.

6. The pattern writing apparatus according to claim 1, further comprising a plurality of optical fibers for leading a plurality of light beams from said light source part to said plurality of input ends, respectively.

5

7. The pattern writing apparatus according to claim 6, wherein a diameter of a core gradually decreases from an input end to an output end in each of said plurality of optical fibers.

10

8. The pattern writing apparatus according to claim 1, wherein said scanning mechanism comprises a polygon mirror for collectively deflecting a plurality of light beams from said optical waveguide array.

9. The pattern writing apparatus according to claim 1, further comprising 15 an aperture plate having a plurality of apertures close to said plurality of output ends, respectively.

10. The pattern writing apparatus according to claim 1, wherein a width of each of said plurality of output ends ranges from 5 to 15 $\mu\text{m}$  and said 20 plurality of output ends are arranged at a pitch ranging from 10 to 20 $\mu\text{m}$ .